

## LESSON & ANSWER KEY – RATIOS .. TAPE DIAGRAMS

We are transitioning to the new UMathXI

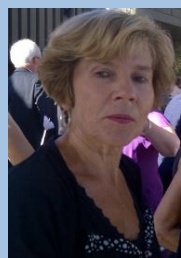
The “U” in UMathX and UMathXI ... is ... “UNDERSTANDING”



R. NEUFELD – SR AUTHOR



L. SKJOLD Ohio - AUTHOR



B. NEUFELD





**webinar/workshop**  
following UMathX Learning Resources are available as we transition to new UMathXI:

- [Support Sheets](#) (with Solutions)
- [Frameworks](#) for Learning (with answers)
- [Interactive Videos](#) at [www.umathx.com](http://www.umathx.com) in 6,7
- [Previous versions of UMathX](#) for K to 10 are available to some
  1. Click to download: [Understanding Numeration](#) ... gr K to 3  
Serial Number: **3-B18652928-465**
  2. Click to download: [Understanding Math](#) ... gr 4 to 10  
Serial Number: **5-B17611264-681**

Notify us at [info@umathx.com](mailto:info@umathx.com) if you would like a webinar.

### Setting up .. “The Learning Environment

**1.**  **UMathX** What is it? Play video at .. [www.umathX.com](http://www.umathX.com)

**2.**  **UMathXI** Access: URL... Username... Password...

As of Feb 27, access is not yet available but are in final testing.

**FOR AN INTRODUCTION** to this lesson ... We suggest that you access the

- **SUPPORT SHEETS .. Section 7: Ratios & Proportions**
- **Understanding Fractions Section 7 in UMathX 2008**  
(available to some above).



P. MORRISON - AL

**NOTE:**  
LINKS TO  
UMATHXI WILL  
FUNCTION AFTER  
WE HAVE  
TRANSITIONED TO  
UMATHXI

# Framework for Learning: Ratios & Proportions - Tape Diagrams

Leader's Name: .....

Co-Leader's Name: .....

Instructor's Initials: .....

## Getting Started: AVAILABLE WHEN UMATHXI is RELEASED TO YOU.

In  follow the **Content Menu** path:

**Fractions > Ratios and Proportions > Ratio, Tape Diagram > Introduction**

As you work through the lesson, complete the corresponding notes and models below.

### FOLLOWING CAN BE DONE WITHOUT THE COMPUTER.

A **ratio** is a \_\_\_\_\_ of one number to another number.

A **ratio** is a \_\_\_\_\_ of \_\_\_\_\_.

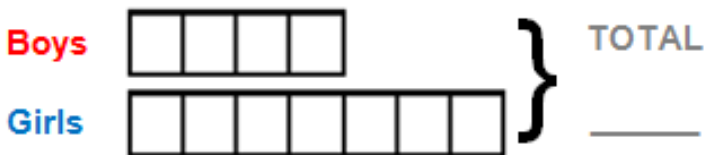


The **ratio** of **boys** to **girls** in a class is **4** to **7**. There are **44** students in the class.

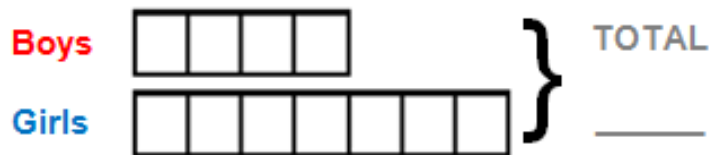
**Find** the number of **boys** and the number of **girls** in the class.

\_\_\_\_\_ are visual models to help in solving problems with **ratios**.

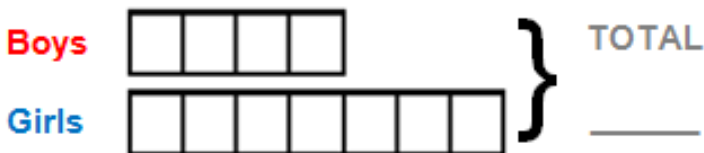
#### Possibility 1



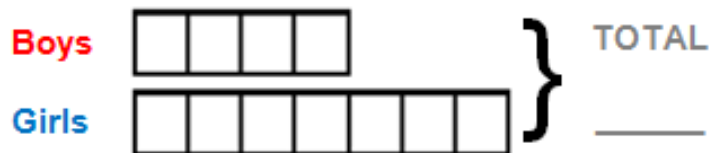
#### Possibility 2



#### Possibility 3



#### Possibility 4



Therefore, the number of **boys** in the class is \_\_\_\_\_, and the number of **girls** in the class is \_\_\_\_\_.

**Discuss with a partner** how the **tape diagrams** above helped in finding the number of **boys** and number of **girls** in the class. **Write** a short paragraph summarizing your discussion below.

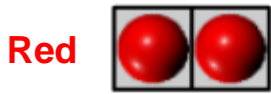


**Build It. Draw It. Talk It. Write It. Now you OWN It!**

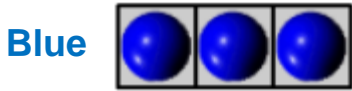


**Working In It:** Use the **tape diagram** to complete the following **ratios**.

### Marbles



The **ratio** of **red** marbles to **all** marbles is  $\frac{\square}{\square}$ .



The **ratio** of **red** marbles to **blue** marbles is  $\frac{\square}{\square}$ . The **ratio** of **blue** marbles to **red** marbles is  $\frac{\square}{\square}$ .

In **UMATH X** follow the **Content Menu** path: **WHEN UMATHXI is RELEASED TO YOU**

**Fractions > Ratios and Proportions > Ratio, Tape Diagram > Ex. 2 – Balls**

Compare your answers above with those in the lesson.

Correct any mistakes.

## OFF COMPUTER ACTIVITY

**Reflect & Connect:** Draw **tape diagrams** to represent and solve the following problems.



A pet store maintains a **ratio** of two dogs for every three cats. Currently, the store has a total of 75 dogs and cats. How many of each animal does the store have?

**Tape Diagram(s)**

The pet store currently has \_\_\_\_\_ dogs and \_\_\_\_\_ cats.

### Basketball



A basketball player makes an average of 7 out of 11 shots per game.

If the player missed 12 shots in a game, how many shots did she make? \_\_\_\_\_ shots

How many total shots were attempted? \_\_\_\_\_ shots

**Tape Diagram(s)**

Compare your **tape diagrams** and answers above with a partner.

**Build It. Draw It. Talk It. Write It. Now you OWN It!**



# Answer Key

## Getting Started

A **ratio** is a **comparison** of one number to another number.

A **ratio** is a **comparison** of **quantities**.

The **ratio** of **boys** to **girls** in a class is **4** to **7**. There are 44 students in the class.

**Find** the number of **boys** and the number of **girls** in the class.



**Tape diagrams** are visual models to help in solving problems with **ratios**.

<p><b>Possibility 1</b></p> <p><b>Boys</b> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>1</td><td>1</td><td>1</td><td>1</td></tr></table> } <b>TOTAL</b></p> <p><b>Girls</b> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table> } <b>11</b></p>	1	1	1	1	1	1	1	1	1	1	1	<p><b>Possibility 2</b></p> <p><b>Boys</b> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>2</td><td>2</td><td>2</td><td>2</td></tr></table> } <b>TOTAL</b></p> <p><b>Girls</b> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr></table> } <b>22</b></p>	2	2	2	2	2	2	2	2	2	2	2
1	1	1	1																				
1	1	1	1	1	1	1																	
2	2	2	2																				
2	2	2	2	2	2	2																	
<p><b>Possibility 3</b></p> <p><b>Boys</b> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>3</td><td>3</td><td>3</td><td>3</td></tr></table> } <b>TOTAL</b></p> <p><b>Girls</b> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td></tr></table> } <b>33</b></p>	3	3	3	3	3	3	3	3	3	3	3	<p><b>Possibility 4</b></p> <p><b>Boys</b> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>4</td><td>4</td><td>4</td><td>4</td></tr></table> } <b>TOTAL</b></p> <p><b>Girls</b> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td></tr></table> } <b>44</b></p>	4	4	4	4	4	4	4	4	4	4	4
3	3	3	3																				
3	3	3	3	3	3	3																	
4	4	4	4																				
4	4	4	4	4	4	4																	

Therefore, the number of **boys** in the class is **16**, and the number of **girls** in the class is **28**.

**Answers will vary on the writing question. Check student work for depth and understanding.**

## Working In It

### Marbles

**Red**

--	--

 The **ratio** of **red** marbles to all marbles is  $\frac{2}{5}$ .

**Blue**

--	--	--

The **ratio** of **red** marbles to **blue** marbles is  $\frac{2}{3}$ . The **ratio** of **blue** marbles to **red** marbles is  $\frac{3}{2}$ .

## Reflect & Connect

### Pet Store

**Tape diagrams may vary. Display various possible representations and discuss with the class. Encourage students to brainstorm other representations of the problem.**

**Answer: 30 dogs; 15 cats**

### Basketball

**Tape diagrams may vary. Display various possible representations and discuss with the class. Encourage students to brainstorm other representations of the problem.**

**Answer: 21 shots made; 33 shots attempted**

**Build It. Draw It. Talk It. Write It. Now you OWN It!**



**Neufeld Learning  
Systems Inc**

www.UMathX.com